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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/735,240	12/11/2003	Michael A. Fetcenko	HS-126	2800
24963 7590 05/12/2008 ENERGY CONVERSION DEVICES, INC. 2956 WATERVIEW DRIVE ROCHESTER HILLS, MI 48309				
EXAMINER ROE, JESSEE RANDALL				
ART UNIT 1793		PAPER NUMBER		
MAIL DATE 05/12/2008		DELIVERY MODE PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/735,240

Applicant(s)

FETCENKO ET AL.

Examiner

Jessee Roe

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 March 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 and 14-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☒ Claim(s) 14-22 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/CDC)
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date: _____

DETAILED ACTION

Status of the Claims

Claims 1-9 and 14-22 are pending wherein claims 1, 6-7, 9, 14-15, 17-18 and 20-21 are amended and claims 10-13 are canceled.

Status of Previous Rejections

The previous rejection of claims 1-9 and 14-22 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention is withdrawn in view of the Applicant's amendment to claim 1. The previous rejection of claims 1-2 under 35 U.S.C. 102(b) as being anticipated by Hjort et al. (Hydrogen sorption kinetics in partly oxidized Mg films) is withdrawn in view of the Applicant's amendments to claims and the Applicant's arguments. The previous rejection of claims 14-15 and 17-22 under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Hjort et al. (Hydrogen sorption kinetics in partly oxidized Mg films) is withdrawn in view of the Applicant's amendments to the claims and the Applicant's arguments. The previous rejection of claims 14-15 and 17-22 under 35 U.S.C. 103(a) as being unpatentable over Welter et al. (US 4,613,362) is withdrawn in view of the Applicant's amendments to the claims. The previous rejection of claim 1, 4-9, 14-15 and 17-22 under 35 U.S.C. 103(a) as being unpatentable over Hu et al. (Preparation and hydriding/dehydriding properties of mechanically milled Mg-30wt% TiMn_{1.5} composite) is withdrawn in view of the Applicant's arguments. The previous rejection of claim 16 as

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being unpatentable over Hjort et al. (Hydrogen sorption kinetics in partly oxidized Mg films) is withdrawn in view of the Applicant's amendments to the claims and the Applicant's arguments. The previous rejection of claim 3 under 35 U.S.C. 103(a) as being unpatentable over Hu et al. (Preparation and hydriding/dehydriding properties of mechanically milled Mg-30wt% TiMn_{1.5} composite), and further in view of Sapru et al. (US 5,976,276) is withdrawn in view of the Applicant's arguments.

Claim Objections

Claims 14-22 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claims 14-22 either depend directly or indirectly from claim 13 which has been canceled.

Claim Rejections - 35 USC § 102/103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 4-9 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Cui et al. (Characteristics of magnesium-based hydrogen-storage alloy electrodes).

In regards to claims 1 and 4-7, Cui et al. disclose a magnesium-based hydrogen storage material having nickel, titanium, and iron desorption catalyst material (page 263, column 2). Cui et al. further disclose coating the magnesium with a nickel-phosphorus coating to protect the alloy from oxidation in potassium hydroxide solutions and improve hydriding/dehydriding reactions and discharge capacity (page 265, column 2). The Examiner asserts that a coating would encompass "a continuous or semi-continuous layer of catalytic material on the surface" as recited in line 6 of claim 1. Alternatively, because the coating would be effective in controlling the hydriding/dehydriding reactions and discharge capacity, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the nickel-phosphorus coating to optimize the hydriding/dehydriding reactions and discharge capacity of the magnesium-base alloy. MPEP 2144.05 II.

Still regarding claims 1 and 6-7 and in regards to claim 8, although Cui et al. does not specify "wherein said hydrogen desorption catalyst is insoluble" as recited in line 4 of claim 1 of "wherein said hydrogen desorption catalyst includes discrete dispersed regions of catalytic material within the magnesium-based hydrogen storage alloy" as recited in claim 6, Cui et al. discloses thoroughly mixing powders; pressing the

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powders into a pellet (compact); transferring the pellets (compacts) into alumina boats; and sintering at 825 K (552°C) for 50 hours. The Examiner notes that Cui et al. discloses the same metal powders and the same or a substantially similar method of processing. Therefore, a hydrogen desorption catalyst that would be insoluble and discrete dispersed regions of catalytic material would be expected. MPEP 2112.01 I.

In regards to claim 9, the Examiner notes that the claim is directed to "The magnesium-based hydrogen storage material" and not a process. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. MPEP 2113.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2 and 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Welter et al. (US 4,613,362).

In regards to claims 1-2 and 4, Welter et al. ('362) discloses a magnesium-based granulate with iron homogeneously distributed over the surface of the granulate particles. Welter et al. ('362) further discloses that the maximum quantity of iron would be at most 20 weight percent (about 9.8 atomic percent). Therefore, the minimum amount of magnesium would be 80 weight percent (about 90.2 atomic percent) (col. 2, lines 45-65). Although Welter et al. ('362) do not specify the degree (continuous or semi-continuous) to which the iron particles would be distributed on the surface, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the iron distribution (by using more or less iron) to achieve the desired catalytic effect because Welter et al. disclose a homogeneous distribution (col. 4, lines 20-36). See MPEP 2144.05 II.

In regards to claim 5, Welter et al. ('362) disclose using steel instead of iron (col. 4, lines 37-43). Carbon would inherently be present in steel.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Welter et al. (US 4,613,362) as applied to claims 1-2 above, and further in view of Sapru et al. (US 5,976,276).

In regards to claim 3, Welter et al. ('362) disclose a magnesium-based storage material as shown above, but Welter et al. ('362) do not specify wherein the magnesium-based storage material would include aluminum.

In the same field of endeavor, Sapru et al. ('276) disclose doping or alloying magnesium with aluminum in order to improve reaction kinetics during hydrogen storage (col. 3, lines 1-22).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the magnesium-based storage material, as disclosed by Welter et al. ('362), by doping or alloying the magnesium-based storage material with aluminum, as disclosed by Sapru et al. ('276), in order to improve the reaction kinetics during hydrogen storage, as disclosed by Sapru et al. ('276) (col. 3, lines 1-22).

Response to Arguments

Applicant's arguments filed 18 March 2008 have been fully considered but they are not persuasive.

The Applicant primarily argues typical mixing and compacting will not form a continuous or semi-continuous layer on magnesium. In response to this argument, Welter et al. ('362) discloses a continuous or semi-continuous granulate formation (col. 3, lines 1-33) which would be exposed after the chipping or comminuting (col. 2, lines 65-69). Therefore, Welter et al. ('362) would read on the instant invention.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jessee Roe whose telephone number is (571) 272-5938. The examiner can normally be reached on Monday-Friday 7:30 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Roy V. King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John P. Sheehan/
Primary Examiner, Art Unit 1793

JR